I would like to comment on this matter from two prospectives. The first is as a licensed member of the Amateur Radio Service and the second is as a practicing engineer in power electronics development for the last 30 years.

Broadband over Power Lines (BPL) has the potential to do enormous damage to the Amateur Radio Service. Studies in other countries have documented 30 to 40 db increases in background noise in the vicinity of even small, experimental sized BPL deployments. A major emphasis in Amateur Radio is on low power, small signal, portable HF operation. This is the exact sort of operation that would be first on the air in the event of an emergency or disaster. An increased noise level would severely limit or even prevent communication. The nature of HF propagation will not limit the noise effect to the vicinity of the BPL installation, but will spread the noise to areas 100's or even 1000's of miles away.

Article 15 devices already cause interference to Amateur Radio operation. I have experienced increased noise floor levels near these devices, particularly if they are connected to the local power line and thus provided with an antenna. On the susceptibily side, I have seen that even a small, legal RF field from an Amateur Radio installation can interfere or block the operation of the device and in some cases false triggering it. The manufactures of these devices market in such a way as to raise expectaions of reliability to consumers and fail to highlight that an operator of a Part 15 device must accept recieved interference. How responsible will BPL operators be to complaints from licensed radio services? How will they respond when a local, legal transmission forces the BPL bit rate to drop to 300 BPS?

BPL will serve to greatly expand the sources of unlicensed HF energy, and, even worse, connect it to an uncontrolled conducting environment. The power distribution grid was not designed for distribution of HF energy. I have experienced RF mixing when the copper/aluminium junction of a mixed-age power distribution line acted as a diode. The signal from two AM broadcast stations mixed, producting energy in the 80 meter Amateur Band. Even the Line Impedence Stabilization Network (LISN) specified by the Commission for complience measurement is a compromise. Studies have shown actual line impedence to vary from a few ohms to 500 ohms with a substantial reactive component. This impedence varies as circuits are open and closed. Since deployment of BPL will require the addition of HF bypass circuitry at EVERY distribution transformer, the specification of the standard LISN must be changed. This would force a recertification or reevaluation of every product that incorporates a line filter at great expense to all consumers. To date, RF fields from Part 15 devices and other equipment such as motor controls and switching power supplies tend to be localized and can be delt with on a case by case condition by both parties. However, a system that purposely blankets a neighborhood with RF will interfere with all recieving equipment in the 2 t0 80 MHZ range.

Given the variable nature of the network, predicting field operation is impossible. As a power electronics engineer I have witnessed countless RF conducted and radiated emission

tests on a wide variety of products. The best that can be done is to narrowly specify the test conditions, making them as close as possible to actual conditions. It is inconsistent to allow the manufacturers to determine the test conditions. Since developing three "typical" measurement conditions is imposible the only practical approach is to require actual field measurements, before and after installation, and impose strict limits. This is consistent with what is required of other wired imformation utilities such as telephone and cable. If a Part 15 BPL device is connected to two miles of power line, is the power line to be considered part of the device for field measurement or not? Is the measurement to be taken 3 meters from the device or 3 meters from the power line? Cable operators are held to strict field leakage requirements and there are documented cases of cable RF leakage interfering with air traffic control operations in Germany. BPL operators should be subject to just as strict a standard.

The Amateur Radio Service is a valuable national resource. For the last 80 plus years it has served as one of our nations true first responders, providing communication when everything else was down, overloaded or inflexible. I invite the commissioners to tune into the ham bands on Field Day (June 28 this year) to witness that flexibility first hand. In that same period it has been the first point of entry to the inner workings of physics and technnology for countless American youth (myself included, in 1965). On June 21st of this year I took my equipment to the field for "Kid's Day" to enable local kids to experience communicating with someone thousands of miles away with just radio; no need for billions of dollars of telecom infrastructure. All of this training and public service will be in jepordy in an RF environment filled with BPL noise.

Already several developed countries have decided not to deploy BPL systems. Most of the major electronic firms such as Siemens have pulled out of the market. The BPL industry seems more interested in spending money on image and marketing to bulldoze their way into the spectrum rather than on engineering to prove themselves to be a good neighbor. Even when deployed, BPL will offer only a fraction of the bandwidth available with alternatives such as optical fiber. All this would be at the high cost of making the HF spectrum unusable over large geographic areas.

The FCC has promised to protect licensed users of the spectrum. I believe it must be held to that promise. Part 15 requirements should not be relaxed to encourage deployment of BPL. BPL operators should be subject to RF emission requirements consistent with cable and other information technology providers.